

REMARKS

In the Office Action, Claims 1-62 are pending and stand rejected. In response, Claims 9, 10, 30, 31, 40, 41, and 46 are amended, Claims 1-8, 11-14, 16-29, 32-39, 42-45, and 47-62 are cancelled and no claims are added. Applicants respectfully request reconsideration of pending claims in view of the above amendments and the following remarks.

I. Claim Objections

Claims 1, 11-16, 22, 32, 42-47, and 53 are objected to because of informalities. In response, Applicant has amended the claims as suggested by the Examiner. Therefore, Applicants respectfully request reconsideration and withdrawal of the objection to the claims.

II. Claim Rejections Under 35 U.S.C. §102

Claims 1-2, 16-17, 22-23, 32-33, 47-48, and 53-54 are rejected under 35 U.S.C. § 102(e) as being unpatentable over U.S. Patent Number 6,763,057 issued to Fullerton et al. ("Fullerton"). In response, Claims 1-2, 16-17, 22-23, 32-33, 47-48, and 53-54 are cancelled. Applicants respectfully disagree with the Examiner's assertions and characterizations regarding the cited reference.

Regarding Claim 9, Claim 9 recites:

9. A radio communication system comprising:

a radio transmitter including encoding means for encoding a digital signal to be transmitted using a code that does not contain any DC component, and a transmission antenna which transmits the signal encoded by said encoding means; and

a radio receiver including a reception antenna which receives the transmitted signal, and decoding means for performing decoding corresponding to encoding for the signal received by said reception antenna and restoring the digital signal, wherein communication is performed without using any carrier;

wherein said encoding means comprises spreading means for performing a spread spectrum process by multiplying the digital signal to be transmitted by a spreading code that does not contain any DC component, and signal generation means for generating an impulse signal in response to rise and fall of a signal spread by said spreading means and outputting the impulse signal to said transmission antenna, and;

wherein said decoding means comprises despread means for performing despread for the signal received by said reception antenna by using a spreading code that does not contain any DC component and corresponds to a differentiated spread signal, and peak detection means for detecting a peak of the signal despread by said despread means and restoring the digital signal.
(Emphasis added.)

Fullerton disclosed a vector modulation system and method for wide band impulse radio communications, where a receiver includes an adjustable time delay circuit to adjust a predetermined delay between correlators to improve detection of a series of time modulated pulses. (See Abstract.) In contrast with Claim 9, Fullerton does not disclose or suggest a radio transmitter that includes encoding means for encoding a digital signal to be transmitted using a code that does not contain any DC component. Fullerton does disclose a modulation scheme that imposes multiple modulation states on each transmitted pulse to enable communication of two or more bits of data by each pulse (see col. 6, lines 53-65), however, that is different from encoding means for encoding a digital signal to be transmitted using a code that does not contain any DC component, as in Claim 9.

According to the Examiner, this feature of Claim 9 (from cancelled Claim 2) is disclosed at col. 13, lines 20-24 of Fullerton. However, the passage referred to by the Examiner describes a delay modulator that is configured to delay each RF pulse by one of four predetermined delay periods, as shown in FIGS. 6, 10, 14, or 18. We submit that the delay of an RF pulse by a plurality of predetermined delay periods, as described by Fullerton, does not disclose, teach, or suggest, a radio transmitter including encoding means for encoding a digital signal to be transmitted using a code that does not contain any DC component, as in Claim 9.

Moreover, in contrast with Claim 9, Fullerton does not disclose or suggest a spreading means for performing a spread spectrum process by multiplying the digital signal to be transmitted by a spreading code that does not contain any DC component, as in Claim 9. We submit that the delaying of an RF pulse by a plurality of periods, as described by Fullerton cannot disclose, teach, or suggest a digital signal to be transmitted by a spreading code that does not contain any DC component, much less despread means for despread a signal received by an antenna by using a spreading code that does not contain any DC component, as in Claim 9.

For each of the above reasons, therefore, Claim 9 and all claims which depend from Claim 9, are patentable over the cited art for similar reasons. Therefore, we respectfully request that the Examiner reconsider and withdraw the 102(e) rejection of Claims 9, 10, and 15.

Each of Applicants' other independent claims includes limitations similar to those highlighted with reference to Claim 9. Therefore, all of Applicants' other independent claims, and all claims which depend on them, are patentable over the cited art, for similar reasons. Consequently, Applicants respectfully request that the Examiner reconsider and withdraw the §102(e) rejection of Claims 30, 31, 40, 41, and 46.

Claims 1, 3, 5-7, 9, 11-13, 15, 16, 18, 20-21, 22, 24, 26-28, 30, 32, 24, 36-38, 40, 42-44, 46, 47, 51-52, 53, 55, 57-59, and 61 are rejected under 35 U.S.C. § 102(e) as being anticipated by U.S. Patent No. 7,257,148 to Suzuki ("Suzuki").

Regarding independent Claims 9, 30, and 40, each of Applicants arguments provided above with regard to 102(e) rejection of such claims in view of Fullerton are applicable to the 102(e) rejection of such claims in view of Suzuki. Suzuki is generally directed to radio frequency communication where a technique is described to attenuate a signal or frequency that is used by another system to prevent interference even when another system is used in the same area or an adjacent area as an ultrawide band radio system. (See col. 4, lines 29-36.) In contrast with Claim 9, Suzuki does not disclose or suggest a radio transmitter including encoding means for encoding a digital signal to be transmitted using a code that does not contain any DC component. This feature is incorporated from cancelled Claim 2 which is rejected under 103(a) over Suzuki in view of U.S. Patent No. 6,459,721 to Mochizuki et al. ("Mochizuki").

Mochizuki is generally directed to spread codes PN1 to PNn that are designed in such a manner that the DC component is minimized to prevent the appearance of carrier frequency component in the transmission spectrum (see col. 16, lines 5-9). However, generating spread codes with a reduced DC component of Mochizuki is something different from encoding a digital signal to be transmitted using a code that does not contain any DC component, as in Claim 9.

Moreover, in contrast with Claim 9, Mochizuki does not disclose or suggest a spreading means for performing a spread spectrum process by multiplying the digital signal to be transmitted by a spreading code that does not contain any DC component, as in Claim 9. We submit that Mochizuki is expressly limited to minimizing the DC component in different spread codes which have the same sequence, with only a code sequence PN0 that is in synchronization. We submit that reducing the DC component in the various spread codes disclosed by Mochizuki cannot disclose, teach, or suggest a digital signal to be transmitted by a spreading code that does not contain any DC component, as in Claim 9. Furthermore, the combination of Suzuki in view of Mochizuki cannot disclose or suggest a spread spectrum process by multiplying a digital signal to be transmitted by a spreading code that does not contain any DC component, as in Claim 9.

Hence, we submit that no combination of Suzuki in view of Mochizuki can disclose, teach, or suggest a radio receiver transmitter including encoding means for encoding a digital signal to be transmitted using a code that does not contain any DC component, much less a despreading means for despreading a signal received by said reception antenna by using a spreading code that does not contain any DC component, as in Claim 9.

For each of the above reasons, therefore, Claim 1 and all claims which depend on Claim 1 are patentable over the cited art. Therefore, Applicants respectfully request that the Examiner reconsider and withdraw the §102(e) rejection of Claims 9, 10, and 15.

Each of Applicants' other independent claims includes limitations similar to those highlighted in Claim 1, as discussed above. Therefore, all of Applicants' other independent claims, and all claims which depend on them, are patentable over the cited art, for similar reasons. Consequently, Applicants respectfully request that the Examiner reconsider and withdraw the §102(e) rejection of Claims 30, 31, 40, 41, and 46.

III. Claims Rejected Under 35 U.S.C. §103

Claims 8, 14, 29, 39, 45, and 60 are rejected under 35 U.S.C. §103(a) as being unpatentable over Suzuki. Claims 2, 4, 17, 19, 23, 25, 33, 35, 48, 50, 54, and 56 are rejected under 35 U.S.C. §103(a) as being unpatentable over Suzuki in view of U.S. Patent No. 6,459,721

to Mochizuki et al. (“Mochizuki”). Claims 10, 31, 41, and 62 are rejected under 35 U.S.C. §103(a) as being unpatentable over Suzuki in view of U.S. Patent No. 6,075,807 to Warren et al. (“Warren”).

Dependent Claims

In view of the above remarks, a specific discussion of the dependent claims is considered to be unnecessary. Therefore, Applicant’s silence regarding any dependent claim is not to be interpreted as agreement with, or acquiescence to, the rejection of such claim or as waiving any argument regarding that claim.

CONCLUSION

In view of the foregoing, it is believed that all claims now pending (1) are in proper form, (2) are neither obvious nor anticipated by the relied upon art of record, and (3) are in condition for allowance. A Notice of Allowance is earnestly solicited at the earliest possible date. If the Examiner believes that a telephone conference would be useful in moving the application forward to allowance, the Examiner is encouraged to contact the undersigned at (310) 207-3800.

If necessary, the Commissioner is hereby authorized in this, concurrent and future replies, to charge payment or credit any overpayment to Deposit Account No. 02-2666 for any additional fees required under 37 C.F.R. §§ 1.16 or 1.17, particularly, extension of time fees.

Respectfully submitted,

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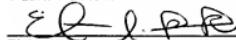
Dated: 3/26/08

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CERTIFICATE OF TRANSMISSION

I hereby certify that this correspondence is being submitted electronically via EFS Web on the date shown below to the United States Patent and Trademark Office.

 3/26/08
Elaine Kwak Date